

What is claimed:

1. An apparatus for notifying a user, comprising:

a first cylindrical transducer adapted to generate a first acoustic field having a first frequency;

- 5 a first frequency generator coupled with said first cylindrical transducer;

a second cylindrical transducer positioned coaxially to said first cylindrical transducer and adapted to generate a second acoustic field having a second frequency not equal to said first frequency; and

a second frequency generator coupled with said second cylindrical transducer, said first and second acoustic fields are proximate to a user's tissue, and exhibit an overlapping portion within the user's tissue with said overlapping portion generating a vibrational sensation inside the user's tissue; and

whereby said vibrational sensation results from a difference frequency generated in the user's tissue by said overlapping portion within the user's tissue of said first and second acoustic fields.

2. The apparatus of claim 1, wherein said notification apparatus is positioned within a cellular telephone.

20 3. The apparatus of claim 1, wherein said notification apparatus is positioned within a portable telephone.

4. The apparatus of claim 1, wherein said notification apparatus is positioned within a beeper.

5. The apparatus of claim 1, wherein said notification apparatus is positioned within a danger notification apparatus.

6. The apparatus of claim 1, wherein said notification apparatus is coupled
5 with an alarm clock.

7. The apparatus of claim 6, wherein said notification apparatus is positioned within a mattress.

8. The apparatus of claim 1, wherein said first and second frequencies are
10 different.

9. The apparatus of claim 8, wherein said first and second frequencies differ by an amount between 10 and 100 cycles.

10. The apparatus of claim 1, wherein said first and second frequency
generators are of the switched type.

11. The apparatus of claim 1, wherein said first and second frequency
20 generators are digitally controlled and current limited.

12. The apparatus of claim 1, wherein said first and second cylindrical
transducers are each formed of a single element.

13. The apparatus of claim 1, wherein said first and second cylindrical transducers are each formed of a plurality of individual elements.

14. An apparatus for notifying a user of an incoming cellular telephone call,
5 comprising:

a cellular telephone body having at least a back surface;

a first transducer positioned within said cellular telephone body perpendicular to said back surface and adapted to generate a first acoustic field;

a first frequency generator coupled with said first transducer to drive said first transducer to generate said first acoustic field in response to an indication that an incoming cellular telephone call has been received;

a second transducer positioned coaxially to said first transducer and adapted to generate a second acoustic field; and

a second frequency generator coupled with said second transducer to drive said second transducer to generate said second acoustic field in response to an indication that an incoming cellular telephone call has been received, said first and second acoustic fields exhibiting an overlapping portion within the user's tissue with said overlapping portion generating a vibrational sensation in the user's tissue, thereby indicating to the user that an incoming cellular telephone call has been received; and

20 whereby said vibrational sensation is generated by a difference of frequency generated in said overlapping portion of said first and second acoustic fields wherein said difference of frequency being more than a threshold difference of frequency so as to generate the vibration sensation at said user's tissue.

15. The apparatus of claim 14, wherein said first and second frequencies are different.

16. The apparatus of claim 15, wherein said first and second frequencies differ by an amount between 10 and 100 cycles.

17. The apparatus of claim 14, wherein said first and second frequency generators are of the switched type.

18. The apparatus of claim 14, wherein said first and second frequency generators are digitally controlled and current limited.

19. The apparatus of claim 14, wherein said first and second transducers are each formed of a single element.

20. The apparatus of claim 14, wherein said first and second transducers are each formed of a plurality of individual elements.

21. A method for notifying a user of an incoming cellular telephone call, comprising the steps of:

providing a first transducer positioned within a cellular telephone body perpendicular to a back surface thereof;

driving said first transducer to generate a first acoustic field in response to an indication that an incoming cellular telephone call has been received;

providing a second transducer positioned coaxially to said first transducer;
driving said second transducer to generate a second acoustic field in response
to an indication that an incoming cellular telephone call has been received, said first and
second acoustic fields overlapping; and

5 generating a vibrational sensation in or at the surface of a user's tissue when
said overlapping fields overlap the user's tissue, thereby indicating to a user by a physical
sensation on said user's tissue, that an incoming cellular telephone call has been received;

whereby said vibrational sensation is generated only in accordance with a
difference of frequency generated in said overlapping portion by said first and second
10 acoustic fields wherein said difference of frequency being a substantial difference of
frequencies generated from not equal frequencies from the first and second transducers.

22. The method of claim 21, wherein said first and second frequencies are
different.

15 23. The method of claim 22, wherein said first and second frequencies differ
by an amount between 10 and 100 cycles

24. The method of claim 21, further comprising the steps of:

20 driving said first transducer with a first frequency driver; and

driving said second transducer with a second frequency driver.

25 The method of claim 24, wherein said first and second frequency drivers
are of the switched type.

26. The method of claim 25, wherein said first and second frequency drivers are digitally controlled and current limited.

27. The method of claim 21, further comprising the step of forming each of
5 said first and second transducer of a single element.

28. The method of claim 21, further comprising the step of forming each of said first and second transducer of a plurality of individual elements.